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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Peter Nunn

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EXAMINER

THAI, SUSAN

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

03/11/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,690	Applicant(s) NUNN, PETER	
	Examiner SUSAN THAI	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20050325</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Currently claims 1-18 are pending in this application.

Drawings

2. The drawings are objected to because the cathode and anode chambers labeled as 5 and 6 respectively should be corrected such that 5 corresponds to the anode chamber, containing the anode and 6 corresponds to the cathode chamber, containing the cathode. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: "cathode chamber 5 and an anode chamber 6" ([0025]) should be corrected to "cathode chamber 6 and an anode chamber 5".

Appropriate correction is required.

Claim Objections

4. Claims 2-3 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 2 and 3 are product by process claims where only the product is given patentable weight. The only patentable limitation is the 'vortex cathode' which was previously recited in claim 1e.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6-7 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Stummer et al. (US 4,169,035).

Regarding **claims 1-3**, Stummer discloses an electrolytic cell for treatment of water solutions (abstract and title), comprising an anode (6) within an anode chamber; a

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vortex cathode (5) within a cathode chamber (C2/L36-45); a semi-permeable membrane (6) (C1/L14-24, the membrane is inherently semi-permeable in order to separate the purified water) separating the anode chamber from the cathode chamber (see Fig. 2 where membrane (6) separates the cathode (5) from anode (6) thus creating chambers); a magnet inside the cathode chamber (see Fig. 2, C4/L19-25 and C6/L4-7, magnets are disclosed being placed on the rotor blade (7) which is within the cathode chamber); a power source to supply electric current to the water treatment device (C4/L13-18).

Furthermore, claims 2-3 are considered product-by-process claims. The cited prior art teaches all of the positively recited structure of the claimed apparatus or product. The determination of patentability is based upon the apparatus structure itself. The patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

Regarding **claim 4**, Stummer discloses all the limitations as set forth above and further discloses where the vortex cathode has a generally upright center axis (see Fig. 3).

Regarding **claims 6-7**, Stummer discloses all the limitations as set forth above and further discloses where the magnet comprises an electromagnet or a permanent magnet (C4/L19-25).

Regarding **claim 13**, Stummer discloses an electrolytic cell for treatment of water solutions (abstract and title), comprising an anode (6) within an anode chamber; a vortex cathode (5) within a cathode chamber (C2/L36-45); a semi-permeable membrane (6) (C1/L14-24, the membrane is inherently semi-permeable in order to separate the purified water) separating the anode chamber from the cathode chamber (see Fig. 2 where membrane (6) separates the cathode (5) from anode (6) thus creating chambers); a magnet inside the cathode chamber (see Fig. 2, C4/L19-25 and C6/L4-7, magnets are disclosed being placed on the rotor blade (7) which is within the cathode chamber); filling the electrolytic chamber with an electrolytic solution (C4/L19-25); passing a current through said device to electrolyze said electrolytic solution to produce oxygen gas at said anode and hydrogen at said cathode (C1/L25-36); exposing said solution and hydrogen gas to a magnetic field generated by a magnet in said cathode chamber (C4/L19-25); resonating said electrolytic solution by exposing it to a vortex cathode is inherent (see Fig. 2 and C2/L36-45); deactivating the treatment device is inherent when the treatment is finished.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stummer et al. (US 4,169,035) as applied to claim 1 above, as evidenced by Hamilton (US 3404084) and Herrington et al. (US 6261464).

Regarding **claim 5**, Stummer discloses all the limitations as set forth above.

Stummer, however, does not explicitly disclose that the north pole of the magnet is positioned over and proximate to the cathode. The mere rearrangement of parts, without any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Japikse*, 86 USPQ 70 (CCPA 1950) (see MPEP § 2144.04).

Furthermore, Hamilton and Herrington both disclose where the magnet is positioned over the cathode such that the field is projected below (see Fig. 2 of Hamilton and Fig. 1 of Herrington), since the instant specification is silent to unexpected result, selecting one of known designs for the magnet placement would have been considered obvious to one of ordinary skill in the art at the time of the invention because said magnet placement would operate equally as well as the one disclosed by Stummer.

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10. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stummer et al. (US 4,169,035) as applied to claim 1 above, and in further view of Clough et al. (5603983).

Regarding **claims 8-9**, Stummer discloses all the limitations as set forth above and further discloses the use of a microporous plastic membrane (C5/L9-12) but does not explicitly disclose that the pores are 0.8 microns in diameter and that the membrane comprises polysulphone.

Clough discloses water treatment (C38/L27-32). Clough further discloses the use of polysulphone as a filter (C40/L16-22).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the membrane of Stummer by using the polysulphone membrane of Clough because it removes colloids from high purity deionized water (C39/L30-55).

Although Clough does not explicitly disclose the pore diameter of the membrane, Clough teaches that larger pores are used for separating coarse substances and smaller pores are used for sterile filtration of gases (C38/L66-C39/L6). “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” See *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). The discovery of an optimum value of a known result effective variable, without producing any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05, II.).

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11. Claims 10-12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stummer et al. (US 4,169,035) as applied to claim 1 or 13 above, and in further view of Okazaki (US 4077862).

Regarding **claim 10**, Stummer discloses all the limitations as set forth above. Stummer, however, does not explicitly disclose the device comprising a rectifier.

Okazaki discloses a device for regulating water (C1/L42-56) and further discloses a rectifier (67).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Stummer by including the rectifier of Okazaki because it provides an automation step in the sense that it stops the initial water supply and initiates electrolysis (C5/L9-23).

Regarding **claims 11 and 17**, Stummer discloses all the limitations as set forth above. Stummer, however, does not explicitly disclose the device comprising a timer.

Okazaki further discloses the use of a timer (55).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Stummer by including the timer of Okazaki because it controls the electrolysis time and further controls when water is collected (C6/L30-36).

Regarding **claim 12**, Stummer discloses all the limitations as set forth above. Stummer, however, does not explicitly disclose the device comprising a counter top dispensing unit.

Okazaki further discloses the use of dispensing units (5 & 6) see (Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Stummer by including the dispensing unit of Okazaki because it provides preserving tanks where water is stored and easily accessible.

12. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stummer et al. (US 4,169,035) as applied to claim 13 above, as evidenced by Hamilton (US 3404084), Herrington et al. (US 6261464) and Klein (US 3274094).

Regarding **claims 14-16**, Stummer discloses all the limitations as set forth above and Stummer further discloses the use of permanent and electromagnets (C2/L17-29 and C4/L19-25, where the magnet is on the rotor in the cathode chamber thus it is inherently proximate to the vortex cathode). Stummer, however, does not explicitly disclose the electromagnet being coil shaped or that the north pole of the magnet is positioned over and proximate to the cathode.

The mere rearrangement of parts, without any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Japikse*, 86 USPQ 70 (CCPA 1950) (see MPEP § 2144.04). Furthermore, Hamilton and Herrington both disclose where the magnet is positioned over the cathode such that the field is projected below (see Fig. 2 of Hamilton and Fig. 1 of Herrington), since the instant specification is silent to unexpected result, selecting one of known designs for the magnet placement would have been considered obvious to one of ordinary skill in the art at the time of the invention because said magnet placement would operate equally as well as the one disclosed by Stummer.

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The change in form or shape, without any new or unexpected results, is an obvious engineering design. See *In re Dailey*, 149 USPQ 47 (CCPA 1976) (see MPEP § 2144.04). The use of coil shaped magnets are known as evidenced by Klein (C4/L12-74).

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stummer et al. (US 4,169,035) as applied to claim 13 above, in view of Shirota et al. (US 20020036134).

Regarding **claim 18**, Stummer discloses all the limitations as set forth above and Stummer further discloses an electrolytic solution but does not explicitly disclose where the solution comprises 0.1% NaCl or 0.1% KCl.

Shirota discloses a method for treating water (abstract). Shirota further discloses 0.1% NaCl in the electrolysis solution ([0071]).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the electrolytic solution of Stummer by including the 0.1% NaCl of Shirota because the water in anode cell becomes acidic and the water in the cathode cell becomes alkaline to produce alkaline ionized water ([0073]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUSAN THAI whose telephone number is (571)270-1487. The examiner can normally be reached on Monday-Thursday, 7:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art Unit 1753

/SUSAN THAI/
Examiner, Art Unit 1795

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